ABSTRACT OF SANITARY REPORTS.

Vol. V.

Washington, D. C., July 11, 1890.

No. 28.

[Published at the Marine-Hospital Bureau in accordance with act of Congress of April 29, 1878.]

UNITED STATES.

SPECIAL REPORTS.

Vessel from Cardenas, Cuba, for the United States, neglecting to take bill of health.

Through the honorable the Secretary of State, information has been received that the Spanish steamer *Serra* cleared from Cardenas on or about June 25, 1890, without taking a consular bill of health, for the United States via Matanzas. The port of destination was not given.

DELAWARE BREAKWATER QUARANTINE STATION.—Yellow fever.—Acting Assistant Surgeon William P. Orr, in charge of this station, reports as follows, under date of July 2, 1890:

I have to report the arrival at this station of another infected vessel from Rio de Janeiro. The bark Jan Melchers came in to-day forty-six days out from Rio. The crew are all well. Whilst at Rio she sent four men to the hospital with yellow fever, and on the fifth day out one man died. I have detained her for disinfection.

Small-pox.

Texas.—In reply to an inquiry from this Bureau, the following letter has been received, under date of July 4, 1890, from Dr. R. Rutherford, State health officer:

Yours of July 1, inquiring if State quarantine is in force on account of small-pox, in Starr County, etc.

Yes, sir, under complete surveillance from Roma to Matamoras.

NEW MEXICO.—The following letter has been received:

Our inspector, Dr. S. S. Herrick, having returned from duty on our southern border, I have the honor to transmit to you his report upon small-pox in New Mexico. As no immediate danger threatens our State we have concluded that until further reports of advancing small-pox reaches us, we will not keep the doctor in service on our frontier.

The report will be published in the next number of the abstract.

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Reports of States, and yearly and monthly reports of cities.

FLORIDA—Pensacola.—Month of June, 1890. Population, 15,000. Total deaths, 27, including phthisis pulmonalis, 2; enteric fever, 2; and measles, 2.

Iowa.—Month of May, 1890. The following is abstracted from the *Monthly Bulletin* for June:

In the year 1880 the annual death rate of the entire State was 16 per 1,000 of the living population. In 1885, with an increase of population of 225,297, the annual death rate was 4.5 per 1,000 of the population. In 1890, with an estimated population of 2,193,477, an increase of 340,564, the annual death rate is estimated at a fraction over 4 per 1,000. In 1883, it was only 3.7 per 1,000 of the population.

The records show that fully 70 per cent. of the total deaths in 1880–'81–'82 were caused by contagious and, therefore, preventable diseases. It was not until 1883 that the work of the State board of health began to be realized. The saving of lives, therefore, through the sanitary and protective measures of the State board is a record to be proud of. It is a record worthy the consideration of every thoughtful mind. It means not only the saving of thousands of human lives, but also the saving of millions of dollars as expenses of sickness. It is estimated by statisticians that for every death per annum two persons are continuously sick. Hence, for every life saved two years of sickness are saved.

It is well known that a large proportion of the deaths are of persons under fifteen years of age, and of these nine-tenths from preventable diseases. If by reducing the mortality rate of this class, and extending life to fifteen years of age, we then have an average expectancy of life of each person of forty-six years. If the average annual income of a person is \$1,000, and the cost of living \$800, the economic value of that person to the community is \$9,200. If the death rate be lowered in a community so that a life is lengthened one year, there would be an economic gain of \$200 in that individual.

Of the 30 per cent. of deaths caused by other than contagious diseases at least one-fifth are caused by consumption, which is now known to be a contagious and preventable disease, but against which no special effort has thus far been directed. When the public shall have become educated to the point of eradicating this disease by proper sanitary methods, the reduction of the mortality rate will be marked, and demonstrate conclusively the wisdom of our sanitary legislation.

Keokuk.—Month of June, 1890. Population, 19,825. Total deaths, 22, including phthisis pulmonalis, 4, and enteric fever, 1.

MICHIGAN.—Week ended June 28, 1890. Reports to the State board of health, Lansing, from 58 observers indicate that cholera infantum, dysentery, diarrhœa, inflammation of brain, inflammation of kidney, and typho-malarial fever increased, and that cerebro-spinal meningitis, scarlet fever, membranous croup, pneumonia, typhoid fever, influenza, and pleuritis decreased in area of prevalence.

Diphtheria was reported at 17 places; scarlet fever, which decreased by 42 per cent., at 19 places; enteric fever, which decreased by 56 per cent., at 9 places; and measles at 31 places.

Month of June, 1890. Reports from observers, compared with the preceding month, indicate that typhoid fever, cholera infantum, cholera morbus, dysentery, diarrhea, and intermittent fever increased, and that tonsilitis, cerebro-spinal meningitis, typho-malarial fever, pneumonia, pleuritis, and whooping-cough decreased in prevalence.

Compared with the average for the month of June in the four years 1886–1889, membranous croup and measles were more prevalent, and typho-malarial fever, cerebro-spinal meningitis, puerperal fever, and whooping cough were less prevalent in June, 1890.

Including reports by regular observers and others, diphtheria was reported present in Michigan in the month of June, 1890, at 58 places, scarlet fever at 52 places, typhoid fever at 28 places, and measles at 108 places.

Reports from all sources show diphtheria reported at 4 places less, scarlet fever at 3 places less, typhoid fever at 4 places less, and measles at 5 places less in the month of June, 1890, than in the preceding month.

Grand Rapids.—Month of May, 1890. Population, 70,000. Total deaths, 75, including phthisis pulmonalis, 13; diphtheria, 8; croup, 1; and measles, 1.

MINNESOTA.—Month of May, 1890. From Public Health for June the following is extracted:

Distribution and mortality from specified diseases in Minnesota for the month of May, 1890, reported up to June 20.

(Population 1889, estimated, cities over 2,000 inhabitants, 539,900; towns and villages, 1,047,860.)

Total number of deaths, 820; 58 per cent. occurred in cities of more than 2,000 population.

Measles.—20 deaths, in 9 localities, 8 counties; 14 occurred in cities. Ages, 65 per cent. under 3 years. A decided increase in mortality and distribution compared with last month.

Scarlatina.—20 deaths, in 13 localities, 11 counties; 40 per cent. occurred in cities. Mortality and distribution greatly increased over last month.

Diphtheria.—34 deaths, in 14 localities, 12 counties; 38 per cent. occurred in cities. A slight increase in mortality compared with last month.

Croup.—11 deaths, in 8 localities, 8 counties; 36 per cent. occurred in cities. Mortality and distribution more than twice as great as last month.

Typhoid fever.—4 deaths, in 4 localities, 4 counties; 50 per cent. occurred in cities. A decided decrease in mortality and distribution compared with last month.

NORTH CAROLINA.—Month of May, 1890. Reports from cities and towns having an aggregate population of 101,700 show a total of 146 deaths, including phthisis pulmonalis, 20; enteric fever, 3; and whooping-cough, 1.

OHIO—Cincinnati.—Month of June, 1890. Population, 325,000. Total deaths, 719, including phthisis pulmonalis, 58; croup, 5; diphtheria, 20; measles, 2; scarlet fever, 3; enteric fever, 14; and whooping-cough, 6.

RHODE ISLAND—Newport.—Month of June, 1890. Population, 22,300. Total deaths, 22, including phthisis pulmonalis, 1; diphtheria, 3; and whooping-cough, 2.

VIRGINIA—Lynchburgh.—Month of June, 1890. Population, 25,000. Total deaths not reported. Two deaths from enteric and one from scarlet fever.

Publications received.

Ordinances of the city of Leavenworth, Kans., relating to the preservation of the public health.

Vol. 3, No. 10, of the sanitary inspector, published by the Maine State board of health.

Archives de Médecine Navale, Paris, France, 1889.

Temperature and precipitation, week ending July 5, 1890.

[Received from the Signal Office, War Department.]

TEMPERATURE.

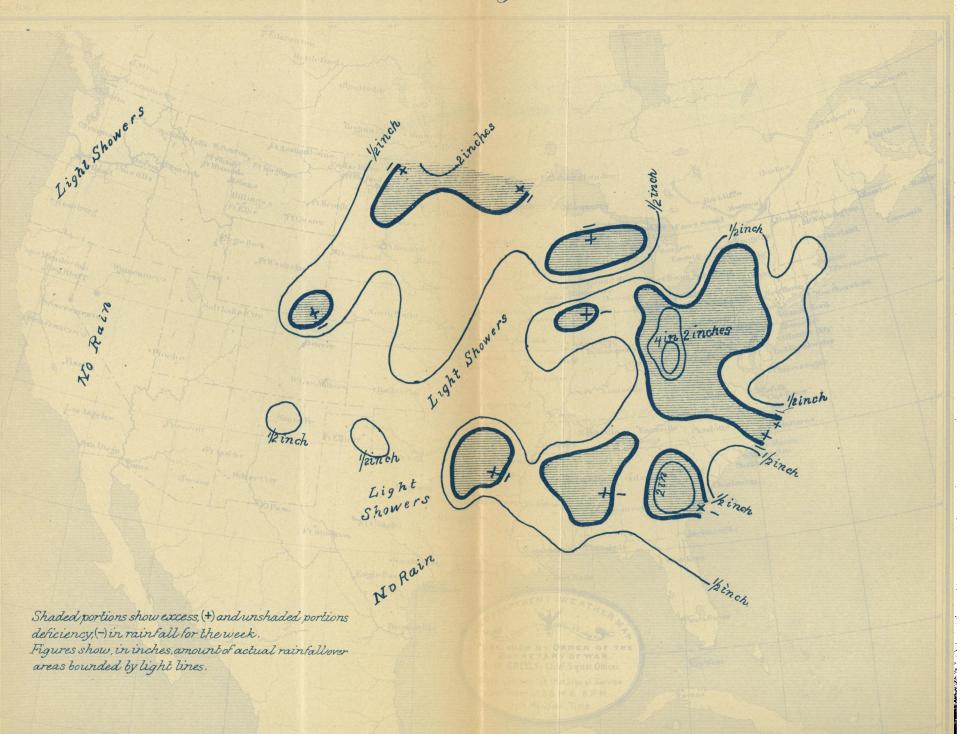
The week ending July 5 has been warmer than usual throughout the central valleys, the Lake region, and the Southern States, the excess of temperature being greatest from the east Gulf States northward to the upper Lake region, where the daily excess of temperature ranged from 3° to 6°. Along the Atlantic and Gulf coasts the temperature for the week differed but slightly from the normal, and on the Pacific coast the excess was slight, except in the valley of the Columbia, where the daily excess exceeded 6°. Over Dakota, and thence southwestward to Arizona, the temperature for the week was slightly below the normal.

The temperature for the season, from January 1 to July 5, continues in excess over all agricultural districts east of the Rocky Mountains, except in Minnesota and Dakota, where the deficiency for the season amounts to a daily average of less than 1°. On the Pacific coast the temperature for the season has been slightly below the normal.

PRECIPITATION.

The rain-fall during the week has been generally below the normal, except in the interior of the middle Atlantic States and over the upper

Rainfall, week ending July 4th. 1890.



Ohio valley. Over the last-named section the rain-fall was heaviest and ranged from two to five inches. Excessive rains also occurred over limited areas in the Southern States, and in Michigan, Wisconsin, and northern portions of Minnesota and Dakota. A large percentage of the areas of North and South Carolina, Georgia, Alabama, and Arkansas received excessive rain-falls, while the rain-fall in Texas and over the greater portion of Louisiana amounted to less than a tenth of an inch. The week was also dry in the lower Ohio and central Mississippi valleys, including Kentucky, west Tennessee, southern Illinois, and Missouri. Well-distributed showers generally occurred throughout the Missouri and upper Mississippi valleys, extending from northern Kansas to Dakota and Lake Superior. Very light showers occurred on the north Pacific coast, but no rain occurred in California.

The rain-fall for the season continues in excess generally throughout the northern States east of the Mississippi, and in Kentucky, Tennessee, Arkansas, and Texas. The recent rain-falls in the south Atlantic States and in Kansas have greatly reduced the seasonal deficiency in rain-fall in those sections, where the total rain-fall for the season generally exceeds 60 per cent. of the normal. In Dakota, Minnesota, and Nebraska, the seasonal rain-fall ranges from 75 to 100 per cent., the greater portion of these areas reporting more than 90 per cent.

MORTALITY TABLE. CITIES OF THE UNITED STATES.

| Cities. | | ula- | rom | Deaths from— | | | | | | | | | | |
|--|--|---|--|--------------|---------------|------------|------------|------------|---------------|------------------|------------------|-------------------------|------------------|-----------|
| | Week ended. | Estimated popula- tion. | Total deaths from | Cholera. | Yellow fever. | Small-pox. | Varioloid. | Varicella. | Typhus fever. | Enteric fever. | Scarlet fever. | Diphtheria. | Measles. | Whooping- |
| New York, N. Y Brooklyn, N. Y Baltimore, Md St. Louis, Mo Boston, Mass | July 5 July 5 July 5 June 28 June 14 | 1, 614, 405 871, 852 500, 343 450, 000 420, 000 | 62 30 242 329 175 | | | | | | | 1 | 9 4 3 4 | 17 21 4 3 9 | 23 1 3 | 1 |
| Boston, Mass | July 5 July 4 June 21 June 28 June 28 July 5 | 420,000 325,000 254,000 254,000 250,000 | 146 212 166 158 143 130 | | | | | | | 5 1 2 7 | 1 | 7 3 1 2 | 1 | |
| Pittsburgh, Pa Milwaukee, Wis Detroit, Mich Detroit, Mich Newark, N. J | June 28 June 28 June 21 June 28 July 5 | 240,000 240,000 230,000 230,000 182,000 | 100 71 55 78 | | | | | | | 2 2 1 | 1 2 2 | 4 5 5 2 2 | 14 | |
| Kansas City, Mo Rochester, N. Y Providence, R. I Indianapolis, Ind Richmond, Va | June 28 July 5 July 4 July 4 July 4 | 180,000 130,000 130,000 129,346 100,000 | 83 34 47 50 74 | | | | | | | 2 | | | 3 | |
| Fall River, Mass Nashville, Tenn Charleston, S. C Charleston, S. C Toledo, Ohio Manchester, N. H | July 5 July 5 June 28 July 5 July 4 July 5 | 69,000 68,531 60,145 60,145 92,000 43,700 | 19 33 45 49 31 | | | | | | | 1 2 1 | | 2 | | |
| Portland, Me Galveston, Tex Binghamton, N. Y Yonkers, N. Y Yonkers, N. Y | July 5 June 20 July 6 June 27 July 3 | 42,000 40,000 35,000 31,949 31,949 | 6 10 7 10 21 | | | | | | | | 1 | | | |
| Auburn, N. Y Newton, Mass Newton, Mass Rock Island, Ill Pensacola, Fla | June 28 June 28 July 5 June 29 June 28 | 26,000 22,011 22,011 11,600 15,000 | 8 3 8 7 4 | | | | | | | | | | | |

FOREIGN.

(Reports received through the Department of State and other channels.)

GREAT BRITAIN—England and Wales.—The deaths registered in 28 great towns of England and Wales during the week ended June 21 corresponded to an annual rate of 17.9 a thousand of the aggregate population, which is estimated at 9,715,559. The lowest rate was recorded in Brighton, viz, 11.8, and the highest in Manchester, viz, 29.0 a thousand. Diphtheria caused 3 deaths in Salford, 3 in Derby, and 2 in Liverpool.

London.—One thousand three hundred and eighty-seven deaths were registered during the week, including measles, 99; scarlet fever, 15; diphtheria, 19; whooping-cough, 66; enteric fever, 6; and diarrhea and dysentery, 24. The deaths from all causes corresponded to an annual rate of 16.4 a thousand. Diseases of the respiratory organs caused 215 deaths. In greater London 1,765 deaths were registered, corresponding to an annual rate of 16.0 a thousand of the population. In the "outer ring" the deaths included measles 34 and whooping-cough 10.

Ireland.—The average annual death rate, represented by the deaths registered during the week ended June 21, in the 16 principal town districts of Ireland, was 21.0 a thousand of the population. The lowest rate was recorded in Armagh, viz, 5.2, and the highest in Galway, viz, 53.8 a thousand. In Dublin and suburbs 141 deaths were registered, including measles, 1; enteric fever, 2; and whooping-cough, 4.

Scotland.—The deaths registered in eight principal towns during the week ended June 21 corresponded to an annual rate of 22.1 a thousand of the population, which is estimated at 1,345,563. The lowest mortality was recorded in Perth, viz, 15.6, and the highest in Glasgow, viz, 25.8 a thousand. The aggregate number of deaths registered from all causes was 572, including small-pox, 1; measles, 41; scarlet fever, 6; diphtheria, 4; whooping-cough, 37; fever, 2; diarrhœa, 5; and croup and laryngitis, 4.

AZORES.—Small-pox.—The United States consul at Fayal writes as follows, under date of July 1, 1890:

I have the honor to inform you that the epidemic of small-pox reported at the island of San Miguel (St. Michael's) has decreased very much in the city of Ponta Delgada, but is running its course in several of the villages. This island continues yet free from the malady.

BAHAMAS—Nassau, N. P.—June 21, 1890. Population, 12,000. City is very healthy at present. Light rains during the week.

NICARAGUA—San Juan del Norte.—Four deaths were reported during the period from April 20 to May 25, 1890. None from contagious diseases.

SPAIN.—Cholera.—The United States consul at Barcelona transmits the following, under date of June 16, 1890:

During the last month, in the village Puebla de Rugat, in the province of Valencia, there were 150 cases of cholera morbus, of which 51 cases proved fatal. The city of Valencia and its environs are up to date free from infectious diseases. I have directed the United States consular agent at Grao de Valencia to make a report to me at least once a week until said disease disappears. The information that I receive from him I will transmit immediately to you.

The following dispatches have also been received by the Secretary of State from H. R. Newberry, chargé d'affaires at Madrid:

June 20, 1890.

SIR: It is difficult to say just the exact condition of things in the province of Valencia in regard to the cholera epidemic. Last evening the foreign office issued a bulletin, of which a copy translation is inclosed. This much is certain, that 120 deaths have occurred in the province of Valencia from cholera morbus, or Asiatic cholera, as the doctors are about evenly divided as to which it is. The inhabitants, such as are financially able, are leaving the country, and the Government is sending physicians and medical supplies to the district in trouble. From conversation with my colleagues of the diplomatic corps, I am inclined to believe that the condition of affairs is not exaggerated, and that the disease is spreading gradually, as press dispatches keep reporting new cases, each time a little farther away from the original bed of disease. Three cases are unofficially reported in Madrid.

At my own expense I sent a man to the village of Puebla de Rugat, in the valley of Albaida. He has returned, and reports a sad condition of things. Out of a population of 1,500 people in the valley, there have been 127 deaths; 800 have fled to neighboring villages, and those remaining are in dire destitution, without money and food, and 200 of them sick. The authorities of the province are doing all they can, but they have no disinfectants, few physicians, and, with the extreme heat and deplorable condition of sanitary arrangements, the situation can not help but become dangerous.

June 21, 1890.

SIR: From private information I know that there were 61 deaths in the village of Puebla de Rugat for the 24 hours ending midnight June 19, and 16 at Montichelvo, a village of 850 people. The Academy of Medicine has issued a bulletin stating that the disease is Asiatic cholera.

June 23, 1890.

SIR: I have the honor to inclose a copy and translation of the Government Bulletin for June 22, and, in addition to the information there given, will say that five new cases and one death are reported from Carcagente.

The authorities have prohibited anti-cholera vaccinations as prac-

ticed by Dr. Ferran's system. The district of Gandia is prohibited from exporting fruit and vegetables.

June 25, 1890.

SIR: I have the honor to inclose 'copy and translation of official bulletin issued by foreign office relative to cholera in Spain. In addition to the cases mentioned, new ones have developed at Gandia, Aleira, Villanneva de Castellon, Fenollet, and Manuel. All these villages are in the province of Valencia. The natural trend of the disease seems to be north by east, and spreading gradually. There is an unconfirmed rumor that cholera exists near the French frontier. It would not surprise me in the least were this so, as quantities of fresh fruits have been exported to France from the infected Spanish district.

[Translation.]

Ministry of the Interior.—Royal Decree.

The Government being aware that in several villages of the Province of Valencia, namely Gandia, some cases of a suspicious disease of a character similar to those of the cholera morbo had presented themselves, at once took such measures as it thought most conducive to the isolation and extinction of the disease, appointing at the same time a technical commission composed of Doctors Cortezo, Martinez, Pacheco, Jimeno y Mendoza, presided over by the director-general of health, with a view to proceed to the infected villages to study and name the disease, the director-general having full powers to take such steps to destroy it as he might think proper.

On its return the commission has reported the existence of the

morbo epidemic cholera.

Fortunately it is true that the zone covered by the epidemic is of little extent and that the number of invasions and deaths is very scarce, both circumstances giving rise, with foundation, to the hope that the evil will not extend itself and that it may soon be extinguished.

But in presence of the necessity of carrying out the provisions of Art. 38 of the sanitary law of November 28, 1855, and to the rules 52 to 60 of the royal order of March 31, 1888, and the Government being disposed to act at once, with due sincerity, by daily publishing every news relating to public health, without any kind of extenuation as demanded by the high and complex interests affected by this grave matter, in accordance with the report of the royal council of health, His Majesty the King and in his name the Queen Regent of the Kingdom has thought fit to order that the maritime Gandia productions be submitted to ten days' quarantine in every case (de rigor) exclusively in the foul Lazarets of Matron and Saint Simon, or fifteen if a case of cholera has occurred on board, and the productions of the other ports of the province of Valencia, as also those of Denia in the province of Alicante, on account of its proximity to the infected places, to three days of observation in the port of arrival, carrying out all the measures for the disinfection provided for in the dispositions now in force.

By royal order I communicated this to you for your knowledge and

that of the maritime sanitary directions of that province.

God guard you for many years.

MADRID, June 24, 1890. RUIZ Y CAPDEPON.

To the Governors of the Maritime Provinces and General Commander of Ceuta.

June 26, 1890.

SIR: In addition to the deaths and cases mentioned in the official bulletin, the Madrid press of this day gives one death in the city of Valencia, one at Genovés, two at Luchente, two at Frailes, and rumor of new cases at several villages on the line of railway between Valencia and Madrid.

The Provincial Government of Madrid have ordered all baggage arriving from infected districts to be fumigated, and no more tomatoes, melons, apricots, cherries, and peaches can be imported into the city until further orders.

The weather continues oppressively hot and sultry, prevailing winds westerly.

Malaga—Yellow fever.—The United States chargé d'affaires at Madrid, under date of June 20, states:

The trouble in Malaga with yellow fever seems also serious. A director of the "Compania Transatlantica" informs me that he has advices that 20 cases exist there. I presume, however, that our consul has sent a full report of the matter.

Gibraltar.—The United States consul furnishes the following, under date of June 19, 1890:

Notice.

GIBRALTAR, June 17, 1890.

The board of health, at a meeting held this day, decided that arrivals from ports in the province of Valencia be forthwith subjected to three days' quarantine of observation, and that from the 24th instant all arrivals from other Spanish ports be refused admission unless provided with British consular visés on their bills of health.

By order:

JOHN C. KING, Secretary to the Board of Health.

The board of health of Gibraltar decided last evening to impose five days of quarantine observation on arrivals from Spanish ports east of Gibraltar.

Alicante.—June 21, 1890. Good health prevails in this town and port, and all sanitary precautions have been taken by the authorities.

A telegram from Mr. Newberry, dated July 5, reports the cholera as increasing.

MEXICO—Piedras Negras.—The United States consul writes, under date of June 20, 1890:

I have the honor to report that no contagious or infectious diseases are present at this port, and that the general sanitary conditions are good.

CUBA—Havana.—Month of June, 1890. Total number of deaths, 826, including yellow fever, 45; enteric fever, 32; so-called pernicious fever, 19; diphtheria, 2; croup, 4; and measles, 5.

Small-pox has very nearly disappeared. There has been, during the past month, a steady increase in the number of cases of yellow fever in the military and other hospitals of the city.

Week ended June 28, 1890. The United States consul reports 80 cases and 4 deaths from yellow fever; also 2 cases of small-pox. The prevailing diseases were yellow, enteric, and pernicious fevers. During the past two months there has been a steady increase in the number of cases of yellow fever in the hospitals and city generally.

Cardenas.—The United States consul writes, under date of June 24, 1890:

I have to inform you of the outbreak of yellow fever in this city and in the hospital. To-day there are two cases in the hospital.

Santiago de Cuba—Possibility of introduction of cholera by means of laborers imported from Spain.—The United States consul reports, under date of June 28, 1890, as follows:

The death statistics for the first half of June, 1890, do not record one case of yellow fever in this city and vicinity. The weather has been unusually hot and dry, and dysentery and diarrhœa are the prevailing diseases among children and also adults. Pernicious fever and consumption have carried off the greatest number of natives. I have so far heard of two sporadic cases of yellow fever since June 15—one a woman in childbirth, the other a soldier. As these cases are the only ones, I continue to issue clean bills of health to vessels leaving here for the United States.

I beg to call your attention to the fact that labor is at present imported here from Spain, and should the cholera there assume or have assumed by this time serious proportions, great care must be exercised here to prevent its introduction into this island. With the utter and complete absence of even the simplest sanitary measures, and a people that, among the negroes, are not over cleanly, the streets all in a filthy condition, open cesspools and no sewerage, it would take very little to feed the germs of the disease if once brought here. This island, owing to its proximity to our coasts, would then become a terrible danger.

West Indies—Martinique—Report of small-pox on steamer Allianca of the United States and Brazilian Mail Steamship Line.—The United States consul at Martinique reports as follows, under date of June 13, 1890:

I have the honor to report that the steamship Allianca, of the United States and Brazil Mail Steamship Line, entered the port of St. Pierre here, between the 21st and 22d of May last. This steamer, in consequence of the presence of small-pox on board, was refused communication at Barbados, W. I., and came thence here, where the facts in the case were carefully concealed from the authorities and people of Martinique.

The vessel landed here seven passengers, not booked, as I am informed, for this place, and took on three passengers, who were ignorant of the presence of this loathsome disease on board. At St. Thomas,

according to recent advices, one of the passengers, who then had small-

pox, died, and had to be towed to sea for burial.

This is and has so recently recovered from a terrible scourging, inflicted by this pest, that the people here are naturally indignant at the subterfuge practiced on them, and I deem it therefore my duty to acquaint the Department of State with the facts.

BRAZIL—Bahia.—The United States consul writes as follows, under date of May 30, 1890:

I have the honor to report the sanitary condition of this city and the adjacent country good. Though an abundance of rain has fallen along the coast for the past six weeks still there is complaint of drought in parts of the interior.

Doctor Bordas on the transmission of typhoid fever by the air.

[Translated for this Bureau from La Revue Médico Pharmaceutique, Constantinople, May 31, 1890.]

The writer has instituted experiments to determine the relation between the humidity of the atmosphere and the transmission of the typhic bacillus. A current of dry air, completely devoid of germs, was conducted through a vessel containing a beef-broth culture of the typhic bacillus and into a second vessel containing sterilized beef broth. The second vessel remained sterile. The result was the same when a dry atmospheric current was passed over pumice stone saturated with a culture of the typhic bacillus. When moist air was passed through the same vessels a very different result was obtained. The sterile beef-broth culture was found, after the lapse of a quarter of an hour, to be thickly planted with the typhic bacillus.

In nature this state of humidity is supplied by mist or fog, and statistics show an increase of typhoid fever in Paris during the months of October, November, December, and January. The most general mode of propagation of typhoid fever is by the contamination of the soil or water, but there are cases in which it is manifested by pulmonary localization. The typhic germ may penetrate into the bronchial system in spite of every means of defense possessed by the organism. Metchnikoff's studies prove that the lungs are a phagocyte battle ground. In typhoid infection, due primarily to pulmonary lesion, it would seem that the phagocytes of the lungs are ordinarily sufficient to prevent the development of the infectious germ, and that contagion by means of the air can take place only when the macrophagic cells cease to offer an obstacle to the invasion of the microbe.

The organism of nitrification.—(See Abstract for June 27, 1890.)

 $[\textbf{Translated for this Bureau from the ``Annales de l'Institute Pasteur, '' Paris, \textbf{May}, 1890.\,]$

In a former paper Dr. Winogradsky described the process by which he identified the organism of nitrification. In a later communication he gives the morphology of this organism. Its cellular form is usually ellipsoid, approaching the sphere in the young cells. The cells are relatively small, their diameter varying from 0.9 to 1.0 millimeter and their length from 1.1 to 1.8 millimeters. Neither filaments nor spores are formed. Division takes place perpendicularly to the grand axis.

The cells are usually at rest, but are sometimes observed in rapid The morphologic characteristics of the microbe do not permit of its being classed with the germ bacillus, and it has received the name of *nitromonas*. In the cultures it attacks and decomposes the earthy carbonates, and this rôle it probably fills in nature. The function of this microbe and its congeners may be to maintain in equilibrium and to regulate the circulation of the carbon on our planet by preventing carbonic acid from becoming fixed in the earthy carbon-A very remarkable property of the nitromonad is that of developing luxuriantly in liquids which are entirely devoid of organic matter, and this development takes place independently of light. These facts leave no room for a doubt that the nitromonad, a colorless organism, may develop normally and exercise its function in a medium devoid of the least trace of organic carbon. The experiments of Dr. Winogradsky have proved an important physiological truth—that complete synthesis of organic matter may be accomplished by the action of living agents without the concurrence of the solar rays.

The properties of the nitromonad may be thus briefly stated:

1. The phenomena of synthesis are the predominant effects of its vital energy, and the result is an accumulation of organic substance.

2. The phenomena of destruction of organic matter, which hold the first rank in the life of other microbes, are here reduced to a scarcely appreciable minimum.

3. These phenomena are replaced in the nitric ferment by a purely oxidizing energy, adapted especially to the oxidation of ammonia.

MORTALITY TABLE—FOREIGN CITIES.

| Cities. Cities | | | popula- | from | Deaths from— | | | | | | | | | |
|--|--|---|---|---|--------------|-------|------------|--------------|----------------------------|----------------|---------------------------|------------------|---------------------|--|
| Liverpool June 14. 613, 463 244 2 10 2 2 11 6 Copenhagen. June 7. 312, 387 148 1 1 1 9 | Cities. | 1 6 | | deaths | | ellow | Small-pox. | Typhusfever. | Enteric fever. | Scarlet fever. | Diphtheria. | Measles. | Whooping- cough. | |
| Port Sarnia | Liverpool Copenhagen Copenhagen Edinburgh Edinburgh Antwerp Belfast Havana Venice Barmen Havre Leith Leith Cienfuegos Alicante Cardenas Victoria, B. C. Gibraltar Kingston, Can Sagua la Grande Guelph, Can Chutham, Ont | June 14 June 7 June 14 May 31 June 14 June 14 June 28 June 17 June 14 June 17 June 14 June 17 June 21 June 22 June 23 June 23 June 21 June 21 June 27 June 27 June 27 June 27 June 28 June 28 June 28 June 28 June 28 June 28 June 21 June 28 June 21 June 28 June 21 | 613, 463 312, 387 271, 135 271, 135 232, 418 232, 222 200, 000 156, 515 113, 000 112, 074 78, 538 40, 655 40, 000 25, 000 18, 500 23, 681 18, 284 15, 605 10, 175 8, 730 6, 200 | 244 148 127 102 8 8 8 8 8 8 8 8 9 9 87 143 64 22 20 21 6 1 7 | | | | 1 | 1 1 1 1 3 2 | 10 1 2 | 2 9 7 1 1 | 1 1 1 1 | 1 2 2 | |